

ABSTRACT

Disclosed is a free flowing dry back-up material which comprises:

- from 67 to 96% by weight of fly-ash;
- from 2 to 15% by weight of a heat sensitive binder such as boric acid;
- from 2 to 7% by weight of a non-wetting agent such as calcium fluoride;
- from 0 to 10% by weight of a heat expandable material, *viz.* a material expandable as a function of the temperature such as vermiculite or graphite; and
- from 0 to 1% by weight of a dust suppressant such as kerosene.

This material which is useful in particular in the aluminum industry

- 15 has the advantages of being water free and free flowing, such avoiding the use of vibrator to position it into a shell. It also has a low density and a low thermal conductivity. Moreover, it is organic free as compared to the existing materials which use an organic binder to ensure a low temperature set; and it sets at a temperature lower than 400°F.